

AMENDMENTS TO THE CLAIMS:

Please amend Claims 24, 34, 36, and 54 as follows:

1-16. (Cancelled)

17. (Previously Presented) A gateway for use in a system wherein a first apparatus, said gateway, and a second apparatus are in a TCP/IP network, wherein the source apparatus, said gateway, and the second apparatus have different IP addresses, said gateway comprising:

a packet receiving unit that is configured to receive a packet addressed at the IP level from the first apparatus to the second apparatus; and

a service plan determining unit that is configured to determine a level of service subscribed to by a user of the first apparatus;

a throttling unit that is configured to throttle the user of the first apparatus by (a) modifying the value of the TCP window size field of the packet so as to change the value from a value present in that field in the packet received by said packet receiving unit in accordance with (1) the level of service subscribed to by the user of the first apparatus and (2) bandwidth usage associated with the user of the first apparatus, and (b) sending the so modified packet to the second apparatus so that the second apparatus receives the so modified packet that has, in its TCP window size field, a value different from the value present in that field in the packet received by said packet receiving unit,

wherein the packet received by said packet receiving unit has, as its source IP address, the IP address of the first apparatus, and has, as its destination IP address, the IP address of the second apparatus, and

wherein the modified packet sent to the second apparatus by said throttling unit has, as its source IP address, the IP address of the first apparatus, and has, as its destination IP address, the IP address of the second apparatus.

18. (Previously Presented) A gateway according to Claim 17, wherein the bandwidth usage is measured as an amount of data per unit of time.

19 - 20. (Cancelled)

21. (Previously Presented) A gateway according to Claim 17, wherein the bandwidth usage is expressed as an average throughput.

22. (Previously Presented) A gateway according to Claim 17, wherein the bandwidth usage is determined using a leaky bucket analysis.

23. (Previously Presented) A gateway for use in a system wherein a first apparatus, said gateway, and a second apparatus are in a TCP/IP network, each of the first apparatus, said gateway, and the second apparatus having different IP addresses, said gateway comprising:

a throttling unit that is configured to (a) determine the number of TCP connections that are open and (b) throttle a user of the first apparatus in accordance with (1) the determination of the number of TCP connections that are open and (2) a level of service subscribed to by the user of the first apparatus.

24. (Currently Amended) A gateway for use in a system wherein a first apparatus, said gateway, and a second apparatus are in a TCP/IP network, each of the first apparatus, said gateway, and the second apparatus having different IP addresses, said gateway comprising:

a throttling unit that is configured to throttle a user of the first apparatus in accordance with (1) a leaky bucket analysis of the user's throughput performed by said gateway and (2) a level of service subscribed to by the user as determined by said gateway,

wherein said throttling unit intercepts a packet on a TCP/IP connection between the first apparatus and the second apparatus; and

wherein said throttling unit effects the throttling by discarding the packet.

25. (Cancelled)

26. (Previously Presented) An apparatus according to Claim 17, wherein said throttling unit compares bandwidth usage to a threshold.

27. (Previously Presented) A method for use in a system wherein a first apparatus, a gateway, and a second apparatus are in a TCP/IP network, each of the first apparatus, the gateway, and the second apparatus having different IP addresses, said method comprising:

intercepting by the gateway of a packet addressed at the IP level from the first apparatus to the second apparatus; and

determining a level of service subscribed to by a user of the first apparatus;

determining whether or not to throttle a user of the first apparatus in accordance with (a) the level of service and (b) bandwidth usage by the user;

throttling by the gateway of the user of the first apparatus in accordance with a determination in said determining step that the user of the first apparatus should be throttled, said throttling comprising (1) modifying, by the gateway, of the value of the TCP window size field of the packet received in said intercepting step so as to change the value from a value present in that field in the packet received in said intercepting step and (2) sending the so modified packet to the second apparatus so that the second apparatus receives the so modified packet that has, in its TCP window size field, a value different from the value present in that field in the packet received in said intercepting step,

wherein the packet received in said intercepting step has, as its source IP address, the IP address of the first apparatus, and has, as its destination IP address, the IP address of the second apparatus, and

wherein the modified packet sent to the second apparatus has, as its source IP address, the IP address of the first apparatus, and has, as its destination IP address, the IP address of the second apparatus.

28. (Previously Presented) A method according to Claim 27, wherein the bandwidth usage is measured as an amount of data per unit of time.

29 - 30. (Cancelled)

31. (Previously Presented) A method according to Claim 27, wherein the bandwidth usage is expressed as an average throughput.

32. (Previously Presented) A method according to Claim 27, wherein the bandwidth usage is determined using a leaky bucket analysis.

33. (Previously Presented) A method comprising:  
determining a number of TCP connections that are open; and  
throttling, by a gateway for use in a system wherein a first apparatus, the gateway, and a second apparatus are in a TCP/IP network, of a user of the first apparatus, in accordance with (1) the determination of the number of TCP connections that are open and (2) a level of service subscribed to by the user.

34. (Currently Amended) A method comprising:  
throttling by a gateway for use in a system wherein a first apparatus, the gateway, and a second apparatus are in a TCP/IP network, of a user of the first apparatus, in accordance with (1) a leaky bucket analysis of the user's throughput performed by the gateway and (2) a level of service subscribed to by the user as determined by the gateway,

wherein the first apparatus, the gateway, and the second apparatus have different IP addresses, and

wherein the gateway intercepts a packet on a TCP/IP connection between the first apparatus and the second apparatus and wherein said throttling comprises discarding of the packet.

35. (Cancelled)

36. (Currently Amended) A method according to Claim ~~34~~ 33, wherein said throttling step comprises modifying the transport level window size field of the packet in response to bandwidth usage exceeding a threshold.

37. (Previously Presented) A gateway according to Claim 18, wherein the transport level window size is the TCP window size field of the packet.

38 - 46. (Cancelled)

47. (Previously Presented) A gateway for use in a system wherein a first apparatus, said gateway, and a second apparatus are in a TCP/IP network, each of the first apparatus, said gateway, and the second apparatus having different IP addresses, said gateway comprising:

packet receiving means for receiving a packet addressed at the IP level from the first apparatus to the second apparatus;

service plan determining means for determining a level of service subscribed to by a user of the first apparatus; and

throttling means for throttling a user of the first apparatus by modifying the value of the TCP window size field of the packet received by said packet receiving means so as to change the value from a value present in that field in the packet received by said packet receiving means in accordance with (1) the level of service subscribed to by the user of the first apparatus and (2) bandwidth usage associated with the user of the first apparatus,

wherein the second apparatus receives the modified packet that has, in its TCP window size field, a value different from the value present in that field in the packet received by said packet receiving means,

wherein the packet received by said packet receiving means of said gateway has, as its source IP address, the IP address of the first apparatus, and has, as its destination IP address, the IP address of the second apparatus, and

wherein the modified packet sent to the second apparatus has, as its source IP address, the IP address of the first apparatus, and has, as its destination IP address, the IP address of the second apparatus.

48. (Previously Presented) A gateway according to Claim 47, wherein the bandwidth usage is measured as an amount of data per unit of time.

49 - 50. (Cancelled)

51. (Previously Presented) A gateway according to Claim 47, wherein the bandwidth usage is expressed as an average throughput.

52. (Previously Presented) A gateway according to Claim 47, wherein the bandwidth usage is determined using a leaky bucket analysis.

53. (Previously Presented) A gateway for use in a system wherein a first apparatus, said gateway, and a second apparatus are in a TCP/IP network, each of the first apparatus, said gateway, and the second apparatus having a different IP address, said gateway comprising:

throttling means for determining a number of TCP connections that are open and for throttling a user of the first apparatus, in accordance with (1) the determination of the number of TCP connections that are open and (2) a level of service subscribed to by the user.

54. (Currently Amended) A gateway for use in a system wherein a first apparatus, said gateway, and a second apparatus are in a TCP/IP network, said gateway comprising:

performing means for performing a leaky bucket analysis of throughput of a user of the first apparatus;

determining means for determining a level of service subscribed to by the user; and

throttling means for throttling ~~a~~ the user of the first apparatus, in accordance with (1) ~~a~~ the leaky bucket analysis of a user's throughput performed by said performing means of said gateway and (2) ~~a~~ the level of service subscribed to by the user as determined by said determining means of said gateway,

wherein said throttling means intercepts a packet on a TCP/IP connection between the first apparatus and the second apparatus, and

wherein said throttling means effects the throttling by discarding the packet.

55. (Cancelled)



56. (Previously Presented) An apparatus according to Claim 53, wherein said throttling means compares bandwidth usage to a threshold.

57. (Previously Presented) A gateway according to Claim 48, wherein said throttling means modifies the TCP window size field of the packet.

58. (Cancelled)

59. (Previously Presented) A gateway for use in a system wherein a first apparatus, said gateway, and a second apparatus are in a TCP/IP network, each of the first apparatus, said gateway, and the second apparatus having different IP addresses, said gateway comprising:

a determining unit that is configured to determine which of a plurality of service plans a user of the first apparatus subscribes to; and

a throttling unit that is configured to throttle the user in accordance with (1) a leaky bucket analysis of the user's throughput and (2) the service plan subscribed to by the user as determined by said determining unit,

wherein said throttling unit intercepts a packet on a TCP/IP connection between the first apparatus and the second apparatus; and

wherein said throttling unit effects throttling by modifying a field in the packet to cause the second apparatus to change an amount of data it sends before awaiting a TCP ACK from the first apparatus.

60. (Previously Presented) A method comprising:

determining by a gateway, for use in a system wherein a first apparatus, the gateway, and a second apparatus are in a TCP/IP network, which of a plurality of service plans a user of the first apparatus subscribes to;

throttling by the gateway of a user of the first apparatus, in accordance with (1) a leaky bucket analysis of the user's throughput and (2) the service plan subscribed to by the user as determined by said determining step,

wherein the first apparatus, the gateway, and the second apparatus have different IP addresses,

wherein the gateway intercepts a packet on a TCP/IP connection between the first apparatus and the second apparatus, and

wherein said throttling comprises modifying a field in the packet to cause the second apparatus to change an amount of data it sends before awaiting a TCP ACK from the first apparatus.

61. (Previously Presented) A gateway for use in a system wherein a first apparatus, said gateway, and a second apparatus are in a TCP/IP network, said gateway comprising:

determining means for determining which of a plurality of service plans a user of the first apparatus subscribes to; and

throttling means for throttling the user, in accordance with (1) a leaky bucket analysis of a user's throughput and (2) the service plan subscribed to by the user as determined by said determining means,

wherein said throttling means intercepts a packet on a TCP/IP connection between the first apparatus and the second apparatus, and

wherein said throttling means effects the throttling by modifying the packet to cause the second apparatus to change an amount of data it sends before awaiting a TCP ACK from the first apparatus.